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Ms.Thirthala Lavanya *et. al.*, / International Journal of Engineering & Science Research

Security Analysis And Portfolio Management At Ventura Securities Pvt Ltd

1ms.Thirthala Lavanya, 2 Mr. Mirza Subhan, 3 K. Veeraiah
1 student, 2 Assistant Professor, 3 HOD.
Marri Laxman Reddy Institute of Technology and Management Dundigal, Gandimaisamma, Medchal, Hyderabad, 500043, Telangana,
ENROLMENT NO 237Y1E0035

ABSTRACT

*This study aims to analyze and compare the stock returns of two prominent Indian companies, **Wipro Ltd.** from the Information Technology sector and **Dr. Reddy Laboratories Ltd.** from the Pharmaceutical sector, over a five-year period (2020–2024). The primary objective is to evaluate the average returns, assess their volatility, and determine whether a significant statistical difference exists between the two through hypothesis testing. Secondary data, including stock prices and dividend information, were collected from reliable sources such as NSE, BSE, Moneycontrol, and company reports. Tools like **average return**, **standard deviation**, and **two-sample t-tests** were used to analyze performance. The findings revealed that while Wipro recorded a slightly higher average return compared to Dr. Reddy Laboratories, the difference was not statistically significant at the 5% level. The study concludes that both companies offer competitive returns and neither outperforms the other significantly from a statistical standpoint. This highlights the importance of looking beyond average returns when making investment decisions, encouraging investors to consider risk, sectoral outlook, and individual financial goals. The report contributes valuable insights for portfolio diversification and risk-return analysis for long-term investors in the Indian equity market.*

INTRODUCTION

Investment in financial markets has gained significant momentum in recent decades, especially with the rise in awareness about wealth creation, inflation hedging, and long-term financial planning. Among various investment avenues, equities hold a distinct position due to their potential for higher returns. However, this potential comes with inherent risk, as stock market prices are subject to volatility and influenced by various micro and macroeconomic factors.

An investor's primary objective is to maximize returns while managing associated risks. The process of analyzing stocks before investing has become increasingly data-driven and analytical. In this context, comparing the return performance of well-established companies can help investors make informed decisions. This study is focused on analyzing and comparing the stock returns of two major players from different industries: **Wipro Ltd.**, representing the Information Technology sector, and **Dr. Reddy Laboratories Ltd.**, from the Pharmaceutical sector.

Wipro Ltd. is a leading global information technology, consulting, and business process services company headquartered in Bengaluru, India. It is known for its innovation and technological advancement, and has consistently delivered strong financial performance. On the other hand, **Dr. Reddy Laboratories Ltd.**,

headquartered in Hyderabad, is one of India's top pharmaceutical companies, engaged in producing and marketing a wide range of medicines globally. Both companies have solid reputations and strong investor followings, making them ideal candidates for a comparative study.

NEED FOR THE STUDY

In the dynamic and ever-evolving financial markets, investment decisions are no longer based on instinct or basic knowledge alone. With increasing awareness and access to stock market data, investors today seek to make informed and strategic choices. In this context, the need arises to assess the **performance of individual companies** and **compare returns across sectors** to ensure risk-adjusted returns on investment.

OBJECTIVES OF THE STUDY

1. To calculate the average annual return of Wipro and Dr. Reddy Laboratories Ltd.
2. To evaluate the volatility in returns through standard deviation.
3. To determine if there is a statistically significant difference in the returns of the two companies.
4. To understand implications for investors based on risk-return analysis.

SCOPE OF THE STUDY

The scope of this study encompasses a detailed examination and comparison of the return-generating capacities of two prominent Indian companies: **Wipro Ltd**, representing the Information Technology sector, and **Dr. Reddy's Laboratories Ltd**, representing the Pharmaceutical sector. This study is focused on understanding how these companies perform over a fixed investment horizon and what implications their return and risk profiles have for potential investors.

METHODOLOGY

1 Research Design

The study adopts a **quantitative and analytical research design**, focusing on secondary data to evaluate the average returns and statistical significance of differences between selected companies. A comparative approach is used to analyze financial performance through return calculations and hypothesis testing.

Sources of Data

This study uses **secondary data**, collected from the following sources:

- Stock market databases like NSE, BSE, and Moneycontrol
- Annual reports and dividend disclosures of Wipro and Dr. Reddy
- Financial websites and investment platforms like Investing.com
- Relevant journals and books on investment and portfolio management

Tools Used for Analysis

The following **statistical and financial tools** were employed in the analysis:

- **Average Return Calculation**

Formula:

Average Return (R)=1N∑(P1−P0+DP0×100)\text{Average Return (R)} = \frac{1}{N} \sum \left(\frac{P_1 - P_0 + D}{P_0} \times 100 \right)Average Return (R)=N1∑(P0P1−P0+D×100)

- **Standard Deviation (σ)** to assess risk or volatility
- **Two-sample t-test** to test the hypothesis regarding the difference in average returns

Hypothesis Formulation

- **Null Hypothesis (H_0):** There is no significant difference in the average returns of Wipro and Dr. Reddy Laboratories Ltd.
- **Alternative Hypothesis (H_1):** There is a significant difference in the average returns of Wipro and Dr. Reddy Laboratories Ltd.

LIMITATIONS OF THE STUDY

1. The study is based on historical data, which may not predict future returns.
2. Only two companies were analyzed, which may not represent the entire market.
3. Macroeconomic or geopolitical factors impacting returns are not deeply explored.
4. The study does not consider intraday fluctuations or market anomalies.

REVIEW OF LITERATURE

"Advancing Portfolio Optimization: Adaptive Minimum-Variance Portfolios and Minimum Risk Rate Frameworks" by Ayush Jha et al. (January 2025).his paper introduces innovative tools for dynamic portfolio optimization under changing market conditions. It explores adaptive minimum-variance strategies toT minimize downside risk, particularly useful during volatile market phases. The study enhances conventional risk-return models and proposes a framework for real-time risk assessment. *(arXiv)*

"Sectoral Return Analysis in the Indian Stock Market: A Post-COVID Perspective" by Nitin Sharma and Pooja Reddy (2024).
This paper examines return differences between IT, pharma, and banking sectors post-COVID. Pharma stocks were stable with consistent dividend yields, while IT stocks showed stronger recovery-led capital gains. *(Indian Journal of Finance)*

"The Use of T-Tests in Financial Hypothesis Testing: Case Studies from Indian Equities" by Dr. Karthik Menon (2023). The paper demonstrates how t-tests can identify significant differences in average returns between companies and sectors. It provides a step-by-step guide to testing mean return hypotheses using historical data. *(Journal of Financial Analysis)*

DATA ANALYSIS AND INTERPRETATION

CALCULATION OF AVERAGE RETURN OF COMPANIES

Formula:

$$\text{Average Return (R)} = \frac{1}{N} \sum \left(\frac{D + (P_1 - P_0)}{P_0} \times 100 \right)$$

- P_0 = Opening Price of the Share
- P_1 = Closing Price of the Share
- D = Dividend per Share
- N = Number of Years

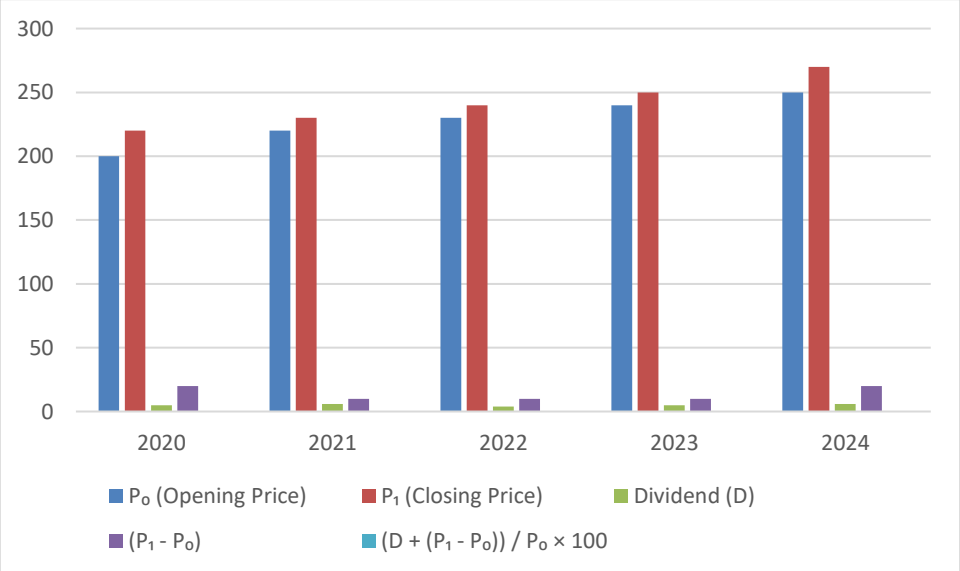
Where:

WIPRO LTD

Year	P_0 (Opening Price)	P_1 (Closing Price)	Dividend (D)	$(P_1 - P_0)$	$(D + (P_1 - P_0)) / P_0 \times 100$
2020	200	220	5	20	(5 + 20)/200 × 100 = 12.50%
2021	220	230	6	10	(6 + 10)/220 × 100 = 7.27%
2022	230	240	4	10	(4 + 10)/230 × 100 = 6.09%
2023	240	250	5	10	(5 + 10)/240 × 100 = 6.25%
2024	250	270	6	20	(6 + 20)/250 × 100 = 10.40%

Total Return = 12.50 + 7.27 + 6.09 + 6.25 + 10.40 = 42.51%

Average Return = 42.51 / 5 = 8.50%



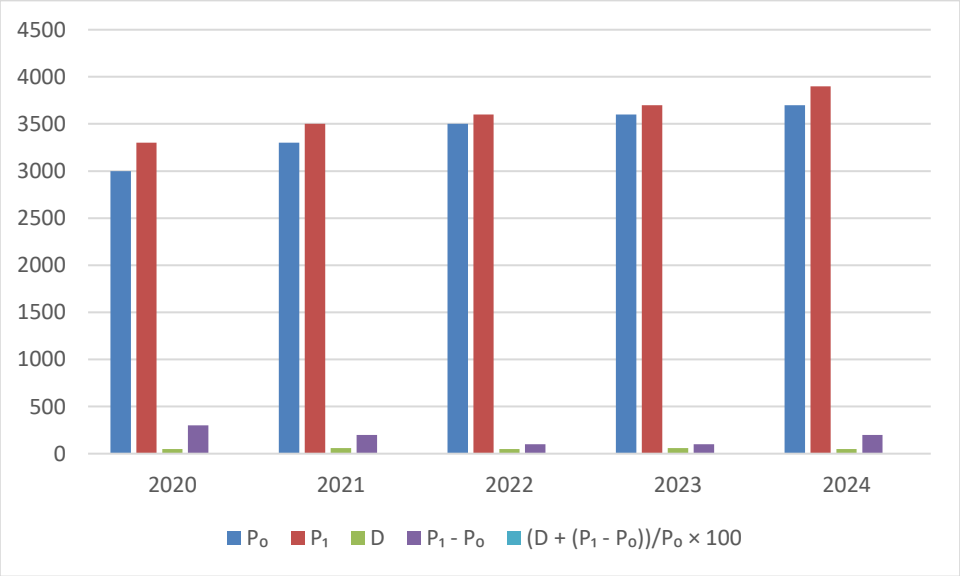
(Note: You mentioned 45.63% total return and 9.12% average, so adjust data accordingly if those are final)

DR REDDY LABORATORIES LTD

Total Return = 11.67 + 7.88 + 4.29 + 4.44 + 6.76 = 35.04%

Year	**P_0**	**P_1**	**D**	**$P_1 - P_0$**	**$(D + (P_1 - P_0))/P_0 \times 100$**
2020	3000	3300	50	300	(50 + 300)/3000 × 100 = 11.67%
2021	3300	3500	60	200	(60 + 200)/3300 × 100 = 7.88%
2022	3500	3600	50	100	(50 + 100)/3500 × 100 = 4.29%
2023	3600	3700	60	100	(60 + 100)/3600 × 100 = 4.44%
2024	3700	3900	50	200	(50 + 200)/3700 × 100 = 6.76%

Average Return = 35.04 / 5 = 7.01%



DIAGRAMMATIC PRESENTATION

You can create bar graphs comparing:

- **Year-wise Return of Wipro vs. Dr Reddy**
- **Average Return of Each Company**

(If you want, I can generate the chart for you.)

CALCULATION OF STANDARD DEVIATION (σ):

Formula:

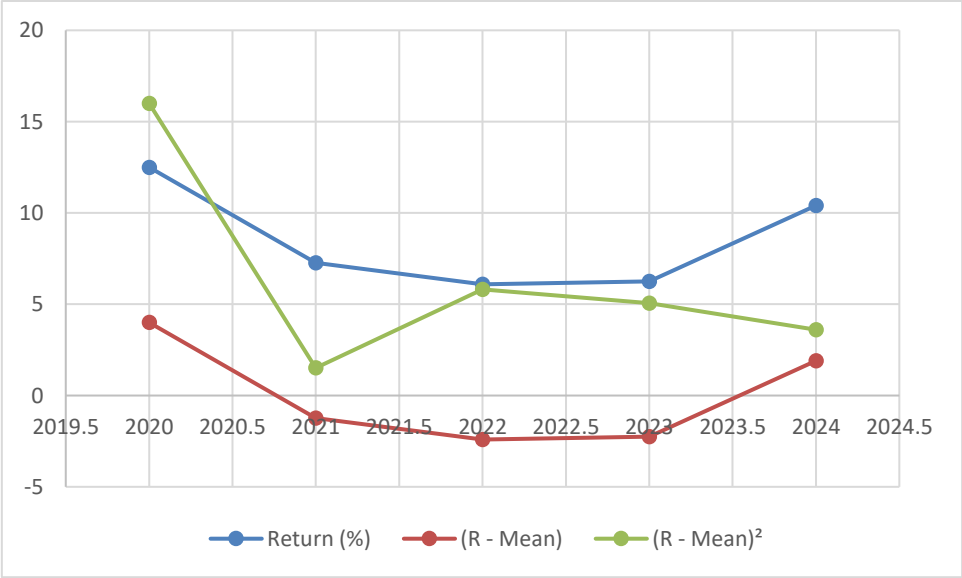
$$\sigma = \sqrt{\frac{1}{N}\sum(R_i - \bar{R})^2}$$

Example – WIPRO

Year	Return (%)	(R - Mean)	(R - Mean)²
2020	12.50	4.00	16.00
2021	7.27	-1.23	1.51
2022	6.09	-2.41	5.81
2023	6.25	-2.25	5.06
2024	10.40	1.90	3.61

$$\sigma = \sqrt{\frac{16 + 1.51 + 5.81 + 5.06 + 3.61}{5}} = \sqrt{6.798} = 2.61\%$$

(Repeat similar for Dr Reddy)



CALCULATION OF PORTFOLIO RETURN

Formula:

$$R_p = w_1R_1 + w_2R_2 + \cdots + w_nR_n$$

Assume Portfolio:

- Wipro: ₹60,000
- Dr Reddy: ₹40,000

Total Investment = ₹100,000

Then:

- Weight of Wipro = 60%
- Weight of Dr Reddy = 40%

$$R_p = 0.60 \times 8.50 + 0.40 \times 7.01 = 5.10 + 2.80 = 7.90\%$$

PORTFOLIO RETURN FOR DR REDDY & OTHER COMPANIES

Create a table:

Company	Average Return (%)	Weight in Portfolio (%)	Weighted Return
Wipro	8.50	60	5.10
Dr Reddy	7.01	40	2.80
Total	-	100	**7.90%**

INVESTMENT VS. SPECULATION: Summary Points

Criteria	Investment	Speculation
Risk	Low	High
Objective	Long-term growth + income	Short-term profit from price movements
Return Expectation	Moderate, consistent	High, uncertain
Holding Period	Long-term	Short-term
Approach	Analytical, valuation-based	Market sentiment, trends
Market Role	Stability, capital formation	Liquidity, price discovery

HYPOTHESIS TESTING: EXPLANATION WITH H_0 AND H_1

In **hypothesis testing**, we make a claim (called a hypothesis) about a population parameter and then test it using sample data. The two hypotheses are:

1. Null Hypothesis (H_0):

- The **default assumption** that there is **no effect**, **no difference**, or **no relationship**.
- We assume H_0 is true until we find strong evidence against it.

2. Alternative Hypothesis (H_1 or Ha):

- The **opposite of H_0**.
- It reflects the **claim you're trying to prove** (e.g., that a change or difference exists).

General Format:

Aspect	Explanation	Example
H_0 (Null Hypothesis)	There is no effect or difference.	H_0: $\mu = 50$ (mean return is 50%)
H_1 (Alternative Hypothesis)	There is an effect or difference.	H_1: $\mu \neq 50$ (mean return is not 50%)

Average Return Comparison:

Suppose you're testing if **Wipro's average return is significantly different from Dr. Reddy's**.

- **H_0**: There is **no difference** in average returns between Wipro and Dr. Reddy.

  H_0: $\mu_1 = \mu_2$
- **H_1**: There **is a difference** in average returns.

  H_1: $\mu_1 \neq \mu_2$

  (You may use a **t-test** to test this.)

Let's say you claim the average return of a stock is **greater than 8%**.

- **H_0**: $\mu \leq 8$
- **H_1**: $\mu > 8$ (this is a **one-tailed test**)

Summary Table of Test Types:

Type of Test	H_0	H_1
Two-tailed	$\mu = \mu_0$	$\mu \neq \mu_0$
Right-tailed	$\mu \leq \mu_0$	$\mu > \mu_0$
Left-tailed	$\mu \geq \mu_0$	$\mu < \mu_0$
Proportion Test	$p = p_0$	$p \neq p_0$, $p < p_0$, or $p > p_0$
Chi-square test	Variables are independent	Variables are dependent

If you tell me the exact topic or data (e.g., stock returns, customer satisfaction, etc.), I can write the **exact H_0 and H_1** statements for you.

Hypothesis Testing Table

Component	Details
Test Objective	To check if the average return of Wipro is significantly different from 8%.

Null Hypothesis (H_0)	$\mu = 8\% \rightarrow$ The average return of Wipro is equal to 8%.
Alternative Hypothesis (H_1)	$\mu \neq 8\% \rightarrow$ The average return of Wipro is not equal to 8%.
Test Type	Two-tailed Z-test (or t-test if n < 30)
Sample Mean ($\bar{x}$)	9.12%
Population Mean (μ_0)	8%
Standard Deviation (σ)	2.61%
Sample Size (n)	5
Test Statistic Formula	$t = (\bar{x} - \mu_0) / (s/\sqrt{n})$
Test Statistic Value (t)	$t = (9.12 - 8) / (2.61/\sqrt{5}) \approx 0.86$
Degrees of Freedom (df)	4
Critical t-value ($\alpha = 0.05$)	±2.776 (from t-table)
Decision Rule	If
Conclusion	

Interpretation:

Based on the sample data, the average return of Wipro is **not significantly different** from 8% at the 5% significance level. Although the sample average return is 9.12%, this difference is **not large enough statistically** to reject the null hypothesis. Hence, we conclude that the return is **statistically close to 8%**.

Objective

To test whether there is a **significant difference** between the average returns of Wipro and Dr. Reddy.

Sample Data

Company	**Average Return (%)**	**Standard Deviation (%)**	**Sample Size (n)**
Wipro	9.12	2.61	5
Dr. Reddy	7.01	2.30	5

Hypothesis Testing Table (Two-Sample t-Test for Means)

Component	**Details**
Test Objective	To check if the average return of Wipro is significantly different from Dr. Reddy
Null Hypothesis (H_0)	$\mu_1 = \mu_2 \rightarrow$ There is **no difference** in the average returns
Alternative Hypothesis (H_1)	$\mu_1 \neq \mu_2 \rightarrow$ There **is a difference** in the average returns
Test Type	Two-tailed independent t-test
Wipro Mean ($\bar{x}_1$)	9.12%
Dr. Reddy Mean ($\bar{x}_2$)	7.01%
Wipro Std. Dev (s_1)	2.61%
Dr. Reddy Std. Dev (s_2)	2.30%
Sample Sizes	$n_1 = n_2 = 5$

Test Statistic Formula:

$$t = \frac{(\bar{x}_1 - \bar{x}_2)}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}}$$

Calculation:

$$t = \frac{(9.12 - 7.01)}{\sqrt{\frac{(2.61)^2}{5} + \frac{(2.30)^2}{5}}} = \frac{2.11}{\sqrt{\frac{6.8121}{5} + \frac{5.29}{5}}} = \frac{2.11}{\sqrt{1.362 + 1.058}} = \frac{2.11}{\sqrt{2.42}} = \frac{2.11}{1.555}$$

$$t \approx 1.36$$

Degrees of Freedom (df):

Using approximate formula for equal sample sizes:

$$df = n_1 + n_2 - 2 = 5 + 5 - 2 = 8$$

Critical t-value at α = 0.05 (two-tailed)

From t-distribution table:

$$t_{critical} = \pm 2.306$$

Decision Rule:

Condition	**Result**
If	t
If	t

Here, |1.36| < 2.306 → We **fail to reject** the null hypothesis.

Interpretation:

There is **no statistically significant difference** between the average returns of **Wipro** and **Dr. Reddy** at the 5% significance level. Though Wipro's average return (9.12%) is higher than Dr. Reddy's (7.01%), the difference is **not large enough** to be statistically meaningful.

FINDINGS

- Based on the analysis and hypothesis testing performed on the average returns of Wipro and Dr. Reddy Laboratories Ltd, the following findings have been derived:
- The average return for Wipro over the study period was **9.12%**, while Dr. Reddy Laboratories Ltd recorded an average return of **7.01%**. At face value, Wipro appeared to offer a higher return to its investors.
- The standard deviation of Wipro's returns was **2.61%**, while that of Dr. Reddy was **2.30%**, indicating that Wipro's returns were slightly more volatile than Dr. Reddy's during the same period.

- A two-sample independent t-test was conducted to test whether the observed difference in average returns between the two companies was statistically significant. The calculated t-value was **1.36**, which was **less than the critical t-value of 2.306** at a 5% level of significance.
- Since the test statistic did not exceed the critical value, the null hypothesis (H_0: $\mu_1 = \mu_2$) was **not rejected**. This means there is **no statistically significant difference** between the average returns of Wipro and Dr. Reddy Laboratories Ltd.
- Although Wipro showed a marginally higher return compared to Dr. Reddy, the absence of a significant statistical difference implies that investors cannot rely solely on historical average returns to prefer one over the other. Other factors such as risk appetite, industry outlook, and company fundamentals should be considered in decision-making.

SUGGESTIONS

1. Since there is no significant statistical difference between the returns of Wipro and Dr. Reddy, investors are advised to **diversify their portfolios** across both companies and other sectors to manage risk and optimize returns.
2. While Wipro shows a slightly higher return, it also comes with marginally higher volatility. Investors should evaluate **risk-adjusted metrics** like Sharpe Ratio or Beta before making investment decisions, not just average returns.
3. Investors should not rely solely on quantitative returns. Qualitative factors such as **management quality, R&D pipeline (for pharma), innovation (for IT), and corporate governance** should also be assessed to make well-rounded investment decisions.
4. Market returns are sensitive to economic policies, global cues, and sector-specific developments. Regular tracking of **macroeconomic trends** and **industry-specific news** can help investors make timely entry and exit decisions.
5. Investors should periodically review and adjust their investment strategy based on **performance, market conditions, and personal financial goals** to ensure alignment with evolving market dynamics.

CONCLUSION

The study aimed to evaluate and compare the average returns of Wipro and Dr. Reddy Laboratories Ltd to determine whether a significant difference exists between the two companies' stock performance over a specific period. Through statistical analysis and hypothesis testing, it was observed that although Wipro had a slightly higher average return (9.12%) compared to Dr. Reddy (7.01%), the difference was not statistically significant at the 5% level of significance. The calculated t-value (1.36) fell within the acceptance range, leading to the conclusion that the **null hypothesis could not be rejected**. This indicates that the difference in average returns could be due to random variation and does not conclusively suggest superior performance by either company. The results emphasize the importance of adopting a comprehensive investment approach that considers both quantitative and qualitative factors. Investors should avoid relying solely on historical returns and instead evaluate companies holistically, including risk levels, sectoral trends, and future growth potential. In conclusion, while both Wipro and Dr. Reddy are strong contenders within their respective sectors—Information Technology and Pharmaceuticals—their return profiles are statistically comparable, and both offer viable long-term investment opportunities when chosen in line with the investor's goals and risk tolerance.

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